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ABSTRACT

High school juniors and seniors participated in three studies of the effects of a thematic organizer on passage comprehension. Comprehension was measured using a cloze procedure in the first study and using a passage-reproduction task in the second and third studies. A thematic organizer (material presented to provide a context for the passage) was presented to the experimental groups before they read the passages; control groups were not given the thematic organizers. Inconsistent results were found between passages and between studies. This was interpreted as indicating that the type of material plays a major role in comprehension and in comprehension measures, limiting the generalizability of studies involving language samples. (Author/AA)

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THE EFFECT OF THEMATIC ORGANIZERS ON COMPREHENSION

Dr. Beverly P. Farr

INTRODUCTION

Comprehension is a complex, covert process that depends on a myriad of internal and external factors, many of which are unique to each individual. If we are seeking to better understand the reading process and, thereby, perhaps to help individuals internalize the process more effectively, it would seem that we need to gain a greater understanding of comprehension, to arrive at some common notion of what it is to "grasp meaning," as defined by Webster. To this end, it is necessary to consider what the unit of comprehension is and how the language user utilizes this unit. The information used and the manner of its utilization have been investigated from two perspectives. One perspective is that the language user processes some minimal unit of comprehension, whether it be word, sentence, or paragraph, as it is directly stated, and attaches meaning to it. In other words, he perceives and processes the information which objectively exists in the linguistic input and ends up with the basic underlying meaning of the word or sentence which is stored in memory (Bever, Lackner, and Kirk, 1969). The other perspective is that the language user or "comprehender" constructs some more wholistic context from the information cues at hand as well as information garnered from his own storehouse of background experience. What he constructs may be based on assumptions, inferences, and guesses, information which often cannot be divorced from what he actually heard or read. This investigation, consisting of a series of three studies, explored this second perspective on comprehension.

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RELATED RESEARCH

The investigation of comprehension has been directed by reading researchers via a variety of approaches: skills, measurement, factor analysis, correlation, readability, introspection,and modeling. These have been cogently summarized by Simons (1971). These approaches have in common the fact that they deal with behaviors which probably are only indirectly, if at all, related to comprehension. To separate these arbitrarily selected behaviors from other psychological processes is like sifting chaff from wheat.

An investigation of some of the recent work in psycholinguistics provides a foundation for the construction of a theory of comprehension. The research in psycholinguistics has proceeded from speculations such as those involved in the Derivational Theory of Complexity (DTC) (Miller, 1962; Bever, 1968) through theories which view sentence-processing as an active, cue-selection procedure. Its focus has shifted from the word to the sentence and now, to a contemplation of a larger unit of meaning. It may be helpful to consider this research through its progression as being focused on three areas related to the language user: 1) what he uses; 2) what he does with what he uses; 3) what he ends up with from what he did with what he used. The first two areas received most of the research attention until recently.

The tendency of the psycholinguistic research of the 1960's was to investigate the "psychological reality" of the various structures postulated by the linguist, such as the phoneme, morpheme, surface structure, and deep structure. This research focused, therefore, on the first area or "what he uses." It was felt that if, in fact, these structures had no psychological reality and were not somehow utilized by the language user, then this linguistic information would have little value for an understanding of language processing. It could be generally concluded

from this widely divergent research that the language user does indeed employ these language structures in some way in order to "interpret" the linguistic input.

What does he do with this information? This question gave rise to research on such processes as perception and decoding, as well as to theories such as the DTC which proposed that the complexity of a sentence can be determined by the number of transformations in its derivation (Miller, 1962; Bever, 1968). An individual comprehends sentences, it was suggested, by running through the transformations in reverse order. A few researchers, however, began to question the findings related to the DTC, and it began to fall into disrepute. Bever (1968), for example, maintained that semantic constraints played a major role in determining the complexity of the sentence as reflected in processing time. He proposed that a person uses a hierarchy of strategies rather than computing the relation between each grammar and sentence. In the "strategy position" that Bever and others adopted, it was proffered that people develop strategies for eliciting meaning from language by utilizing clues or pieces of information that serve as signals and assist in the retrieval of the underlying meaning. The complexity of a sentence would be determined, then, by the effectiveness of the cues, i.e., how accessible they make the deep structure.

Until recently, the third area of research dealing with "what the language user ends up with," was scarcely attended to. A number of recent investigations in this area have been carried out, however, and these studies serve as the underpinnings to the present investigation.

Bransford and Franks (1971) contrasted the phenomenon of "idea acquisition and retention" with an "individual sentence memory" notion. Non-consecutive, but semantically-related sentences were presented to Ss during the acquisition phase of their experiments, and it was found that the Ss spontaneously integrated the information expressed in the sentences into

"wholistic, semantic ideas" which contained more information than any original sentence. The Ss were most confident about recognizing sentences which expressed all the semantic relations involved in a complete idea.

These same investigators (with Barclay, 1972) concluded in another experiment that sentence retention was a function of memory for overall semantic situations rather than a function of memory for semantically-interpreted deep structural relations. They found it was more difficult for Ss to differentiate sentences presented during the recognition phase when the sentences were classified as "potential inference" than when they were "non-inference."

Bransford and Johnson (1972) devised an appropriate context in the form of a picture to provide the organizational theme of an otherwise difficult-to-comprehend passage. The "theme condition greatly facilitated the listener's recall of the passage and resulted in much higher comprehensibility ratings by the listener. Pompi and Lachman (1967) attempted to show that "a unified theme in meaningful discourse initiates surrogate processes in that the S stores some arrangement of words, visual images, and schemata that may reflect the 'essential ideas' of the passage." They found that meaningful verbal material has semantic content and that a S's knowledge of this content governs word choice in regeneration of the material. They presented a training list of words in meaningful syntactic order or random order. A recognition test contained an equal number of distractor words of high or low thematic association (TA). A predicted interaction between word order and TA was obtained. The presentation of a thematic title was also found to facilitate retention of a passage's words in a study by Dooling and Lachman (1971).

The main points of the theory which the research cited above exemplifies are given below:

1. We cannot capture knowledge by viewing it as a static representation of an input. Single objects and even more global events gain meaning only by virtue of their relation to other information.

2. The unit of comprehension cannot be individual objects in isolation. The minimal unit must be some more wholistic context or event. The word dominated verbal learning research for a time as the sentence does now, but neither perspective considers all the psychological processes involved in acquiring and retaining information from verbal material.

3. Prior knowledge is not sufficient to insure comprehension. This knowledge must be activated if one is to understand.

4. Ss do not "store" the information expressed by a sentence. Instead they use this information to update their knowledge of the world. We might say that Ss do not simply remember the input, but rather what they take the input to "be about." This applies not only to individual sentences, but to sets of sentences as well, i.e., several sentences may contribute to the construction of a wholistic semantic description, and the latter may be remembered despite the fact that the individual sentences leading to its construction were lost.

5. This approach to linguistic comprehension places considerable emphasis on the knowledge system of the comprehender and focuses on the contributions he must make in order to understand.

6. The appropriate context facilitates comprehension and recall because it specifies a configuration of elements whose implicational significances are congruent with those necessary to understand the passage and part of the process of understanding involves operating on the context and seeing just what the implications of these operations would be.

(Bransford and McCarrell, 1972)

PURPOSE

This investigation consists of a series of studies, the purpose of which is to examine the effect of a "thematic organizer" (which provides a structure, schema, or the essential ideas and relationships of a passage) on reading comprehension. Two other purposes subsumed under the general one given above are: 1) to compare the effect of the thematic organizer on comprehension as

measured by a cloze task and a reproduction task; and 2) to compare the effect of three types of thematic organizers on comprehension as measured by a reproduction task.

EXPERIMENT 1

Hypothesis

Scores on cloze tests on three passages given under a theme condition will be significantly better than scores on cloze tests given under a no-theme condition where the theme for passage 1 is a picture, for passage 2 is a one-word topic, and for passage 3 is a title.

Subjects

Twenty-five undergraduate students were selected from two classes in the School of Education, Indiana University. The selection of college students was based on the assumption that this sample would consist of competent readers who would not have difficulty reading the materials and would be able to complete the experimental tasks.

Materials

Three passages with related thematic organizers (see example in Appendix) were selected that had been used in previous investigations (Bransford and Johnson, 1972; Dooling and Lachman, 1971). These passages were specially constructed to simulate a problem-solving situation in which an individual cannot impose a theme on a passage. The first passage was a description of a situation, the second a description of a familiar procedure, and the third a metaphorical description of an historic event. Previous investigations utilizing these experimental materials presented all passages orally. Although the lexical items and sentence structure were familiar, the passages themselves were largely uninterpretable. That is, it was not possible to determine what the passage was about. One intention of the present study was to investigate the effects of different thematic organizers on reading comprehension.

Three different passages and thematic organizers were selected in order to be able to observe the effects using a variety of passages and three types of thematic organizers.

A cloze test was constructed for each passage by a deletion of every third content word (noun, verb, adjective, adverb). An n^{th}-word deletion of all words included a large proportion of function words which seemed to increase the comprehensibility ratings deceptively. Due to the brevity of the passages, only content words were deleted.

Reliability ratings (test/retest) for the cloze tests, obtained using Spearman rank-order correlations, were as follows: passage 1, .53; passage 2, .65; passage 3, .86. The reliabilities were considered adequate considering the brevity of the passages. It seems likely that a practice effect may have caused the increase in the correlations from passage 1 to passage 3, since all Ss received the passages in that order.

Design

A 2 x 3 repeated measures design was used with treatments (T and NT) and passages being the independent factors. Subjects were randomly assigned to treatment conditions.

Procedures

Two independent treatment conditions were devised in which Ss received a test booklet with three cloze tests for the three passages;either all three passages were presented to a subject with a different thematic organizer for each passage (T) or all were presented without a thematic organizer (NT). All subjects were tested in one group in a single 50-minute session.

To score the cloze tests, the exact word or a synonym judged acceptable by the investigator was counted as correct. Although it has been shown that counting synonyms does not statistically affect the significance of a correlation between cloze and other

measures of comprehension, it was felt that for purposes of this study, supplying a synonym would be sufficient evidence for comprehension.

Results

Raw scores on the three passages were converted to percentages to account for differences in the total possible scores on the three tests. The results of the two-way analysis of variance are presented in Table 1.

TABLE 1. ANALYSIS OF VARIANCE ON CLOZE SCORES UNDER T AND NT CONDITIONS ON THREE PASSAGES

Sources of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F Ratio
A (Theme or not)	1	1112.74	1112.74	8.76*
Error (Between)	20	2539.45	126.97	
B (Passage)	2	16464.21	8232.11	66.22*
AB	2	248.40	124.20	.99 NS
Error (Within	40	4972.73	124.32	

*Significant at the .05 level

The F ratios for variation between group means for factors A and B were both significant at the .05 level. That is, there was a significant difference between the two treatment conditions and a significant difference between passages. The findings indicated that the presentation of a thematic organizer prior to the reading of a passage produced significantly better scores on a cloze test than when the organizer was withheld. The interaction (AB) between passages and treatments was nonsignificant at the .05 level.

A simple main effects analysis was also performed on the data to examine the effect of the treatment conditions for each independent passage. Using this analysis, the F ratios for pas-

sages 1 and 3 were found to be significant at the .05 level, but the effect for treatment was not significant for passage 2. That is, on the second passage, cloze scores for the T group were not significantly better than the scores for the NT group. No conclusions can be drawn from these results regarding the effectiveness of a particular thematic organizer, however, since type of thematic organizer and passages were confounded.

EXPERIMENT 2

Hypothesis

Scores on reproduction tasks (based on mean number of ideas recalled) on three passages will be significantly better under a theme condition than under a no-theme condition.

Procedures

Subjects for Experiment 2 were from the same classes as used in Experiment 1. Twenty-five Ss out of the total group of 50 were asked to do the reproduction task for Experiment 2, instead of the cloze task. The design and materials were the same as those used for Experiment 1.

Subjects were either presented all three passages with appropriate cues or all three without the cues. All subjects were again tested in one group in a single session.

In this experiment, a reproduction task was required. Subjects were asked to read each passage and then to write as much as they remembered of it. Ss were told that if they could not remember it word for word that they should write down as many ideas as possible. The reproduction task was used since it is felt that it is a good measure of general comprehension.

The following procedure was adopted for scoring recall protocols: 1) Individual sentences, basic semantic propositions, or phrases were designated *a priori* as idea units. 2) A raw score consisted of the total number of ideas recalled; paraphrases were allowed. 3) The protocols were scored independently by two judges against a list of idea units. Interjudge reliability

ratings, obtained by using Spearman rank-order correlations, ranged from .83 to .97.

Results

The analysis of the data for this study is based on the scores of reproduction protocols of 18 undergraduate students who completed a reproduction on each of three passages. (The test results of four of the original Ss were discarded since they were incomplete.) Raw scores were again converted to percentages to equate the passages since total possible scores for the three passages differed. The results of the two-way analysis of variance are presented in Table 2.

TABLE 2. ANALYSIS OF VARIANCE OF REPRODUCTION SCORES UNDER T AND NT CONDITIONS ON THREE PASSAGES

Sources of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F Ratio
A (Theme or not)	1	5766.00	5766.00	6.31*
Error (Between	16	14611.70	913.23	
B (Passages)	2	1462.48	731.24	6.01*
AB	2	148.78	74.39	.61 NS
Error (Within)	32	3891.41	121.61	

*Significant at .05 level

The F ratios for variation between group means were significant for both factors A and B. That is, there was a significant difference evidenced in reproduction scores between treatment conditions and a significant difference between passages. The findings indicated that the presentation of a thematic organizer prior to the reading of a passage will produce scores on a reproduction task which are significantly different from scores produced when thematic organizers are not presented.

As in the first study, a simple main effects analysis was performed to examine the effect of the treatment condition for each passage. In this analysis, the F ratio for passage 2 alone was found to be significant at the .05 level. The F ratios for passages 1 and 3 were not significant. It is noteworthy that this is a reversal of the results of the analysis in Experiment 1. The treatment effect for passage 2 was not significant in Experiment 1 where the cloze was the criterion measure. However, in Experiment 2 where the reproduction was the criterion measure, the treatment effect for passage 2 was the only one that was significant.

EXPERIMENT 3

Hypothesis

Significant differential effects on the mean number of ideas recalled on three types of passages will be produced when the passages are presented with three types of thematic organizers.

Subjects

Forty high school juniors and seniors from the Humanities classes at Bloom Township High School, Chicago Heights, Illinois, were selected as the sample. The students, who were slotted into these classes as the best English students (based on a written test and teacher judgement), were assumed to be competent readers.

Design

To test the hypothesis, a 4 x 3 repeated measures design with mixed factors was used. A (treatment) was considered a fixed factor; B (passages) was considered random. Subjects were randomly assigned to the four treatment conditions.

Materials

Three new passages were developed by the researcher for this experiment. Three types of passages were developed to parallel those used in Experiments 1 and 2: a description of a situation, a description of a procedure, and a metaphorical description of a

historic event. Each passage was devised through a process of trial and revision. This process was continued until at least three judges were unable to determine the theme of the passages. For each passage, three appropriate one-word topics and three titles were selected as possible thematic organizers. The topics and titles were presented to individuals who were asked to indicate which topic and title they felt best identified the theme of each passage. The consensus ratings then determined which ones were to be used in the study. The pictures which served as thematic organizers for the passages were drawn by an artist. The first was adapted from a cartoon, and the others were conceived by the artist to represent the themes of the passages.

Procedures

The experimental task used in this study was again the reproduction task. Each of three treatment groups was presented three passages, each with one of the three types of thematic organizers; one treatment group was presented three passages without any thematic organizers. All subjects were tested in one session and were given test booklets and instructions as in the first two experiments. Ss were allowed as much time as necessary. All completed in 45 minutes or less.

Reproduction protocols were again scored by counting the number of ideas recalled. Verbatim recall of idea units or a paraphrase was counted as correct.

Results

Each passage contained the same number of idea units so it was not necessary to convert the raw scores to percentages, and the raw scores were used in the analysis. The results of the two-way analysis of variance are presented in Table 3.

TABLE 3. ANALYSIS OF VARIANCE OF REPRODUCTION SCORES UNDER T_1, T_2, T_3, AND NT CONDITIONS ON THREE PASSAGES

Sources of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F Ratio
A (Treatment)	3	253.49	84.50	1.74 NS
Error (Between)	36	1744.50	48.46	
B (Passages)	2	14.47	7.23	.85 NS
AB	6	104.53	17.42	2.04 NS
Error (Within)	72	615.00	8.54	

The F ratios for variation between group means were non-significant at the .05 level for factors A and B. That is, there were no significant differences between treatment conditions and no significant differences between passages. The interaction (AB) between treatments and passages was also non-significant.

In order to test the differences for the effect of A (treatment) between all possible pairs of means, the Newman-Keuls procedure was used. The results revealed that no pair of means could be considered statistically different. Although the effect for T_2 appeared to be somewhat higher than the others, the difference was not statistically significant.

DISCUSSION

The findings in the first experiment must be interpreted with caution. It is not possible to conclude that cloze is a valid measure of comprehension, nor is it possible to determine exactly what factors influence performance on a cloze task. The significant differences between T and NT groups on passages 1 and 3 were not duplicated in passage 2. That is, Ss were able to

complete the cloze test for passage 2 equally well whether they had been exposed to the theme or not. The means indicate that passage 2 was, indeed, the easiest passage. It appears that the cloze is highly dependent on the nature of the passage and the words included. Since the S under the NT condition knows that passage 2 is a description of a procedure, and many words are common to such a description, it seems that he is able to complete the cloze adequately, even without knowing what procedure is being described.

It was anticipated that the findings in the second experiment would duplicate Bransford and Johnson's (1972) and Dooling and Lachman's (1971) findings using the same passages under oral presentations. Although the analysis of variance suggested that this expectation was borne out, the simple main effects analysis showed that this was not the case for all of the passages. It seems that the differences obtained in the earlier investigations did not transfer to the reading mode.

It is interesting that for this study, the mean for passage 3 was the highest, and the mean for passage 2 was the lowest; whereas in Experiment 1, passage 2 was the easiest on which to complete the cloze task, and passage 3 was the most difficult. That is, the means were ordered:

Experiment 1 - $P_1 > P_2 > P_3$

Experiment 2 - $P_1 > P_2 > P_3$

This was true under both T and NT conditions. It seems that the nature of the passages and of the lexical items does, indeed, influence the outcome on comprehension measures. It is possible that the greater the degree of uniqueness, the easier the ideas of a passage are to recall, but the more difficult it is to complete a cloze on the passage.

The findings in the third study should be interpreted with respect to the findings in the preceding studies. It is noteworthy that the difference between T and NT groups that was obtained for at least one of the passages in Experiment 2 did not result for

any of the passages or any of the thematic organizers in Experiment 3. This finding must be interpreted with regard to certain limitations of the study which include the small sample size and the fact that Ss were allowed to read the passages (which were relatively brief) more than once which may have meant that they were able to memorize a good portion of the material. Some of the responses from the NT group indicated that this may have been the case since the first few lines were word-for-word recall of the passage, after which the ideas recalled became quite confused and scattered. The NT subjects may have had a stronger tendency to memorize since they did not have any clue to let them know what the passage was about. This would have inflated their scores.

Taken together, the three studies of this series do not provide conclusive evidence for the effect of thematic organizers on reading comprehension. In fact, there appears to be some contradiction between the findings of studies 2 and 3, since the presence or absence of a thematic organizer in Experiment 3 did not result in significant differences for any of the passages, whereas in Experiment 2 there were significant differences at least for one of the passages. Although the passages used were different for the two experiments, the passage types were parallel.

A number of alternative factors operating independently or in combination, may have contributed to the confused findings. In Experiment 2, the passages and thematic organizers were the same ones used in previous investigations by Bransford and Johnson (1972) and Dooling and Lachman (1971). The differences found in the present study between T and NT scores in a reproduction task replicated Bransford and Johnson's findings for "context before" and "no context" conditions and Dooling and Lachman's findings for "thematic-title" and "no thematic title" conditions, according to the analysis of variance. The analysis for simple main effects, however, indicated that this difference was clearly evident only in the case of passage 2. It is possible that the difference in mode of presentation, that is, written instead of oral, may have allowed the Ss to remember more of the passage and, therefore, to

perform well on the reproduction task whether a thematic organizer was presented or not.

The fact that these findings were not replicated for T and NT conditions in Experiment 3 using new passages and thematic organizers may be explained in part by a problem discussed by Clark (1973) and Coleman (1964, 1974). This problem, referred to by Clark as the "language-as-fixed-effect-fallacy," concerns the use of language samples in verbal learning and reading experiments. Clark's main point is that many researchers have treated the language sample used in their experiments as a fixed instead of a random effect, implicitly assuming that the sample they chose constitutes the complete population of language samples they wish to generalize to. The statistical evidence does not show that their findings generalize beyond the language sample they chose, but they have, nevertheless, drawn conclusions which presume that they have. In other words, a conclusion based on an experiment using a single language sample may not be arrived at a second time using a different sample due to particular idiosyncracies of the language material.

The finding in Experiment 3 that no thematic organizer was more effective than any other for any of the three types of passages is somewhat difficult to interpret. It is difficult to understand why there were no differences, for example, in the case of passage 1 where it would seem that the picture would be more effective in clarifying the relationships existing in the unique situation described in the passage. It may be possible that the thematic organizer merely allows the subject to construct a semantic description of the passage and that the type of thematic organizer does not matter. The semantic description may be imaginal, verbal, some combination of both, or some other code altogether. It is evident that much more research needs to be done on the nature of the semantic description elicited from a passage and stored in memory.

The examination of comprehension measures also produced findings which are multi-interpretable. In Experiment 1, where the cloze measure was used, the post-hoc analysis demonstrated

that the differences between T and NT groups was evident for passages 1 and 3, but not for passage 2. This finding must be examined closely with relation to the consideration of the validity of cloze as a measure of comprehension. It seems possible that this validity is highly dependent on the type of passage used and the lexical items included.

The lack of clear and consistent findings in this study may have implications for measuring comprehension. That is, with certain types of material, it may be possible to respond at an adequate criterion level on typical comprehension measures without really understanding the substance of the message.

In addition, with certain types of material, it seems that it is possible to complete a cloze task, considered by some to be a valid measure of comprehension, without knowing the central theme of a passage. This may not be the case with other types of material, where knowledge of the topic of a passage is essential to adequate performance on a cloze task.

SUMMARY

In this series of studies, the effect of thematic organizers on reading comprehension was investigated. In the first two studies, passages and thematic organizers from previous investigations were used, and the effect was measured on a cloze task and a reproduction task. In the third study, three new passages with three thematic organizers for each one were developed to examine the differential effects of organizers on comprehension measured by a reproduction task.

The results of the first study which utilized a cloze task produced significant differences for T and NT on passages 1 and 3, but not on the second passage. In contrast to this, the second study resulted in significant differences between T and NT only for the second passage and not for the first and third passages. It seems evident that the type of material plays a major role in comprehension and comprehension measures.

The results of the third study did not manifest any significant differences for types of thematic organizer and passage. The

difference between the three T groups and the NT group was also nonsignificant. These results may have been due to a number of factors. The passages may not have been as unintelligible as was thought, enabling Ss to impose a theme on them. NT subjects demonstrated a tendency to memorize the first few sentences, thereby inflating their scores. A problem concerning the generalizability of studies involving language samples was also considered which may provide the most reliable explanation for the results of the present study and the most valuable information for future studies on verbal learning and reading.

APPENDIX

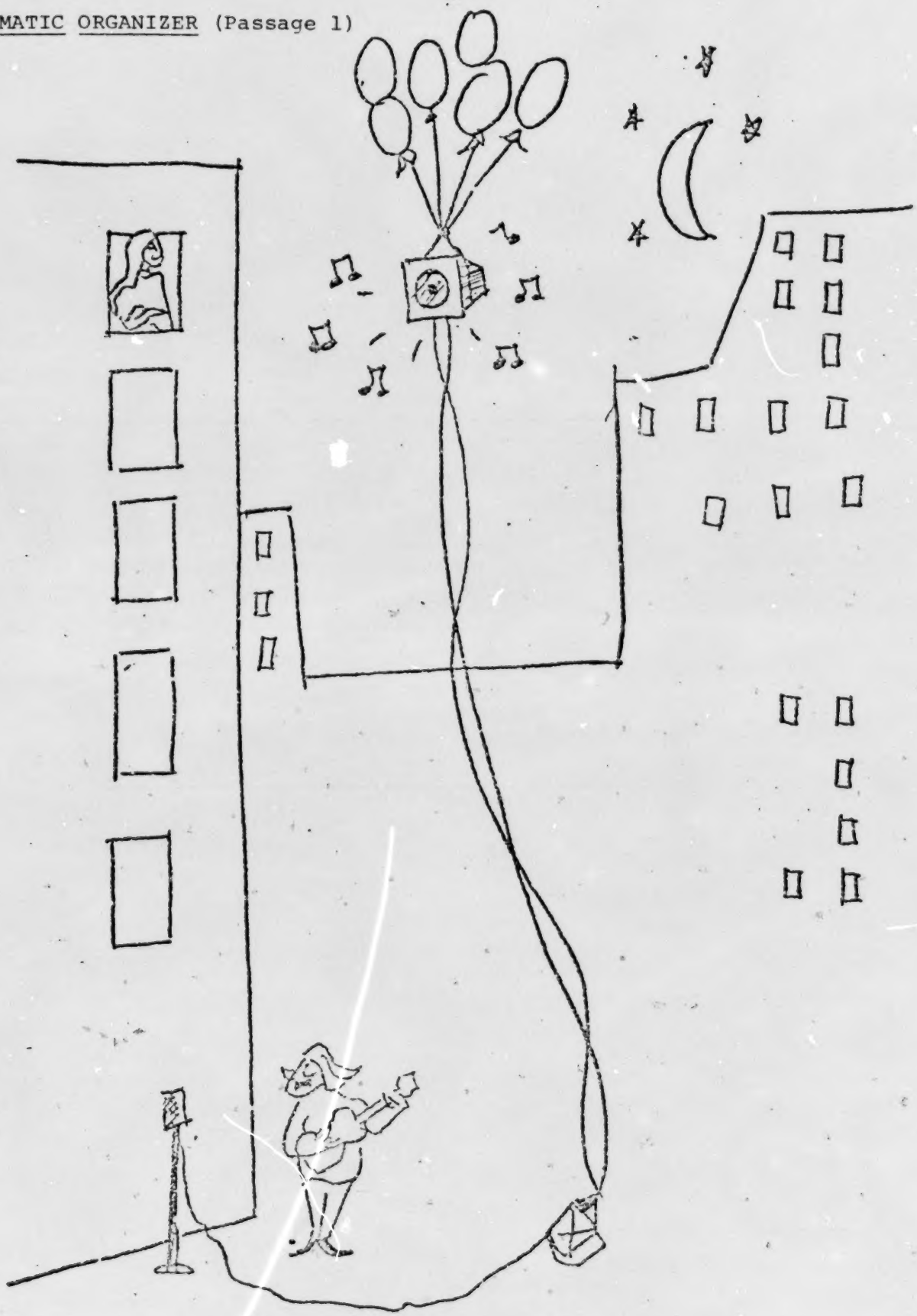
Passage 1 and Thematic Organizer

(Study 1)

PASSAGE 1

If the balloons popped, the sound wouldn't be able to carry since everything would be too far away from the correct floor. A closed window would also prevent the sound from carrying, since most buildings tend to be well insulated. Since the whole operation depends on a steady flow of electricity, a break in the middle of the wire would also cause problems. Of course, the fellow could shout, but the human voice is not loud enough to carry that far. An additional problem is that a string could break on the instrument. Then there could be no accompaniment to the message. It is clear that the best situation would involve less distance. Then there would be fewer potential problems. With face to face contact, the least number of things could go wrong.

THEMATIC ORGANIZER (Passage 1)



REFERENCES

Bever, T. G.; Lackner, J. and Kirk, R. The underlying structure and sentence is the primary unit of immediate speech processing. Perception and Psychophysics, 5 (1969), 225-234.

Bever, T. G. A survey of some recent work in psycholinguistics, in Specification and Utilization of a Transformational Grammar. Edited by W. Plath. Yorktown Hts., N.Y.: Thomas J. Watson Research Center, 1968, 1-93.

Bormuth, John. Cloze as a measure of readability, in International Reading Association Conference Proceedings. Edited by J. Allen Figurel, 1963, 131-134.

Bransford, John D. and Franks, Jeffery J. The abstraction of linguistic ideas. Cognitive Psychology, 2 (1971), 331-350.

Bransford, John D.; Barclay, J. Richard, and Franks, Jeffery J. Sentence memory: a constructive versus interpretive approach. Cognitive Psychology, 3 (1972), 193-209.

Bransford, John D. and Johnson, Marcia. Contextual prerequisites for understanding: some investigations of comprehension and recall. Journal of Verbal Learning and Verbal Behavior, 11 (1972), 717-726.

Bransford, John D. and McCarrell, Nancy. Some thoughts about understanding what it means to comprehend. Paper presented at the conference on "Cognition and the Symbolic Processes," Pennsylvania State University, 1972.

Coleman, Edmund B. Generalizing to a language population. Psychological Reports, 14 (1964), 219-226.

Coleman, Edmund B. Generalization variables and restricted hypotheses. Journal of Reading Behavior, 5 (Fall, 1972-73), 226-241.

Coleman, Edmund B. and Miller, G. R. The simplest experimental design that permits multiple generalization. Journal of Reading Behavior, 6 (April, 1974), 31-40.

Clark, Herbert H. The language-as-fixed-effect fallacy: a critique of language statistics in psychological research. Journal of Verbal Learning and Verbal Behavior, 12 (1973), 335-359.

Dooling, D. James and Lachman, Roy. Effects of comprehension on retention of prose. Journal of Experimental Psychology, 88 (1971), 216-222.

Fodor, J. and Garrett, M. Some reflections on competence and performance, in Psycholinguistic Papers. Edited by J. Lyons and R. J. Wales. Edinburgh: Edinburgh University Press, 1966, 135-179.

Franks, Jeffery and Bransford, John. The acquisition of abstract ideas. Journal of Verbal Learning and Verbal Behavior, 11 (1972), 311-315.

Goodman, Kenneth. Reading: a psycholinguistic guessing game. Journal of the Reading Specialist, 6 (May, 1967), 126-135.

Miller, G. A. Some psychological studies of grammar. American Psychologist, 17 (1962), 748-762.

Pompi, Kenneth and Lachman, Roy. Surrogate processes in the short-term retention of connected discourse. Journal of Experimental Psychology, 75 (1967), 143-150.

Rankin, Earl. The cloze procedure - its validity and utility, in Eighth Yearbook of the National Reading Conference, 1959, 131-144.

Simons, Herbert D. Reading comprehension: the need for a new perspective. Reading Research Quarterly, 6 (1971), 338-363.